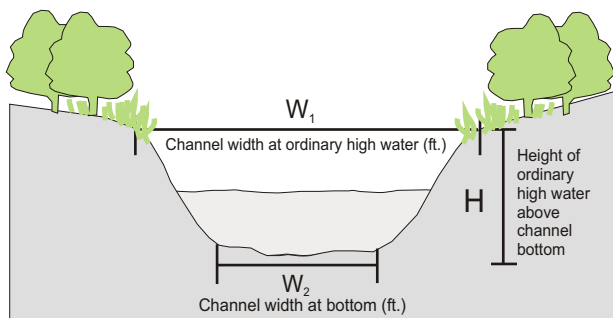


Applicant Name _____ Date: _____

Culvert Sizing

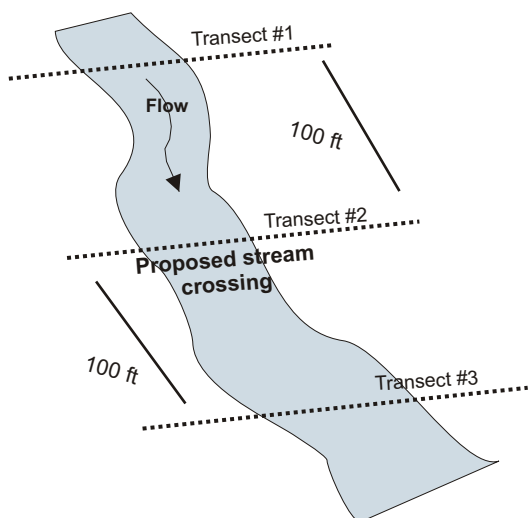
To be eligible for a general permit without a professionally engineered culvert design, the required culvert area may not exceed 20 square feet. To be eligible for a general permit with a professionally engineered culvert design, the required culvert area may not exceed 40 square feet. An individual permit will be required for culvert areas greater than 40 square feet.



Calculating Culvert area

To determine the required culvert area, 3 measurements should be made: channel width of the stream in feet at the ordinary high water mark (W_1), channel width of the stream in feet at the stream bottom (W_2), and the height in feet of the ordinary high water above the stream bottom (H) (see diagram). These 3 measurements are made at each of 3 locations or transects along the stream: the location of the proposed crossing, 100 feet upstream from the crossing, and 100 feet downstream from the crossing. The individual measurements of W_1 , W_2 and H are averaged to derive the final W_1 , W_2 and H values. The required culvert area is then calculated with the following equation:

$$\text{Required Culvert area (square feet)} = H \times (W_1 + W_2)$$



	Height (ft.)	W_1 (ft.)	W_2 (ft.)
Transect #1			
Transect #2			
Transect #3			
sum of column			
sum / transects	/3	/3	/3
AVERAGE			

[] X ([] + [])
 Height (ft.) W_1 (ft.) W_2 (ft.)

Required Culvert area (square feet) = []

The minimum size culvert needed to pass flows must have an area that is as much or more than the required culvert area. For example, the required culvert size for a culvert area calculation of 8.5 sq. ft. would be 42".

Culvert area and corresponding round culvert size

Culvert area (sq ft)	Culvert diameter (in.)
1.80	18
3.00	24
4.90	30
7.10	36
9.60	42
12.60	48
15.90	54
19.60	60
23.80	66

Culvert area and corresponding pipe arch dimensions

Culvert area (sq. ft.)	Pipe width (in.)	Pipe height (in.)
6.4	43	27
8.7	50	31
11.4	58	36
14.3	65	40
17.6	72	44
22.0	73	55
25.3	81	54
26.0	85	59
31.0	87	63
35.0	95	67
40.0	103	71